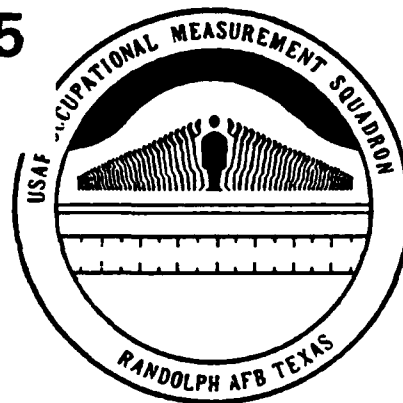




AD-A259 185



UNITED STATES
AIR FORCE

DTIC

ELECTE

DEC 8 1992

S

C

D

OCCUPATIONAL SURVEY REPORT

92-30930



47
pgs.

LIQUID FUELS SYSTEMS MAINTENANCE

AFSC 545X1

AFPT 90-545-923

OCTOBER 1992

OCCUPATIONAL ANALYSIS PROGRAM
USAF OCCUPATIONAL MEASUREMENT SQUADRON
AIR TRAINING COMMAND
RANDOLPH AFB, TEXAS 78150-5000

APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED

DISTRIBUTION FOR
AFSC 545X1 OSR AND SUPPORTING DOCUMENTS

	<u>OSR</u>	<u>ANL</u> <u>EXT</u>	<u>TNG</u> <u>EXT</u>	<u>JOB</u> <u>INV</u>
AFIA/IMP	2			
AFLMC/LGM	1		1	
AFLMC/XP	1		1	
AFMPC/DPMRPQ1	2			
AFMPC/DPMRAD5	1			
AL/HRD/HRMM	2	1m	1m	1
AL/HRT/DOS	1	1m	1m/1h	1
ARMY OCCUPATIONAL SURVEY BRANCH	1			
CCAF/AYX	1			
COMMANDANT DEFENSE INFO SCHOOL	1		1	
DEFENSE TECHNICAL INFORMATION CENTER	2			
DET 1, HQ AFMWRA/MWHBR	1			
HSD/DPI	1		1	
HQ AFCEA/DMG	1		1	
HQ ACC/DPATD	3		3	
HQ AFSPACECOM/DPAE	3		3	
HQ AFESC/DEMG (TYNDALL AFB FL)	1		1	
HQ ATC/DPAEO	3		3	
HQ ATC/TTOT	2		1	
HQ DeCA/DPM	1			
HQ PACAF/DPAE	3		3	
HQ USAF/DPPT	1			
HQ USAFE/DPAD	3		3	
NODAC	1			
Standards Division (MAGTEC)	1			
USAFOMS/OMDQ	1			
USAFOMS/OMYXL	10	2m	5	10
3330 TCHTW/TTO (CHANUTE AFB IL)	3	2	3	3
3330 TCHTW/TTS (CHANUTE AFB IL)	1		1	

m = microfiche only

h = hard copy only

DTIC QUALITY CONTROL

Accession For	
NTIS GRA&I	<input checked="" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By _____	
Distribution/	
Availability Codes	
Avail and/or	
Special	
A-1	

TABLE OF CONTENTS

	<u>PAGE NUMBER</u>
PREFACE.	iv
SUMMARY OF RESULTS	v
INTRODUCTION	1
Background	1
SURVEY METHODOLOGY	1
Inventory Development.	1
Survey Administration.	2
Survey Sample.	3
Task Factor Administration	3
SPECIALTY JOBS (Career Ladder Structure)	5
Overview	5
Comparison to Previous Survey.	10
CAREER LADDER PROGRESSION.	10
Skill-Level Descriptions	13
AFR 39-1 SPECIALTY DESCRIPTION ANALYSIS.	13
TRAINING ANALYSIS.	13
First-Enlistment Personnel	19
STS.	19
POI.	27
JOB SATISFACTION	27
IMPLICATIONS	35

TABLE OF CONTENTS
(Tables, Figures, Appendices)

	<u>PAGE NUMBER</u>
TABLE 1 - MAJCOM REPRESENTATION IN SAMPLE	4
TABLE 2 - PAYGRADE DISTRIBUTION OF SAMPLE	4
TABLE 3 - DISTRIBUTION OF TIME SPENT ACROSS DUTIES BY MEMBERS (RELATIVE PERCENT OF JOB TIME SPENT)	7
TABLE 4 - SELECTED BACKGROUND DATA ON PERSONNEL IN CAREER LADDER JOBS	8
TABLE 5 - COMPARISON OF CAREER LADDER STRUCTURE FOR CURRENT AND PREVIOUS SURVEY.	11
TABLE 6 - DISTRIBUTION OF SKILL-LEVEL MEMBERS ACROSS CAREER LADDER JOBS (PERCENT)	11
TABLE 7 - TIME SPENT ON DUTIES BY MEMBERS OF SKILL-LEVEL GROUPS (RELATIVE PERCENT OF JOB TIME)	12
TABLE 8 - REPRESENTATIVE TASKS PERFORMED BY 54531/51 PERSONNEL. . . .	14
TABLE 9 - REPRESENTATIVE TASKS PERFORMED BY 54571 PERSONNEL	15
TABLE 10 - TASKS WHICH BEST DIFFERENTIATE BETWEEN DAFSC 54531/51 AND DAFSC 54571 PERSONNEL (PERCENT MEMBERS PERFORMING)	16
TABLE 11 - TASKS WITH HIGHEST AFSC 545X1 TRAINING EMPHASIS RATINGS . .	17-18
TABLE 12 - TASKS WITH HIGHEST TASK DIFFICULTY RATINGS FOR 545X1 PERSONNEL.	20-21
TABLE 13 - REPRESENTATIVE TASKS PERFORMED BY FIRST-ENLISTMENT 545X1 PERSONNEL.	22
TABLE 14 - MAINTENANCE PERFORMED AND EQUIPMENT MAINTAINED AND OPERATED BY FIRST-ENLISTMENT 545X1 PERSONNEL (PERCENT MEMBERS RESPONDING).	23-26
TABLE 15 - AFSC 545X1 STS ELEMENTS NOT SUPPORTED BY OSR DATA (LESS THAN 20 PERCENT MEMBERS PERFORMING).	28-29
TABLE 16 - EXAMPLES OF TASKS PERFORMED BY 20 PERCENT OR MORE AFSC 545X1 GROUP MEMBERS AND NOT REFERENCED TO THE STS (PERCENT MEMBERS PERFORMING)	30
TABLE 17 - UNSUPPORTED POI OBJECTIVES TAUGHT TO PERFORMANCE LEVEL. . .	31
TABLE 18 - EXAMPLES OF TECHNICAL TASKS WITH GREATER THAN 30 PERCENT MEMBERS PERFORMING AND NOT REFERENCED TO POI	32-33
TABLE 19 - COMPARISON OF JOB SATISFACTION INDICATORS FOR 545X1 TAFMS GROUPS IN CURRENT STUDY TO A COMPARATIVE SAMPLE (PERCENT MEMBERS RESPONDING)	34
TABLE 20 - COMPARISON OF JOB SATISFACTION INDICATORS FOR AFSC 545X1 TAFMS GROUPS IN CURRENT AND PREVIOUS STUDY (PERCENT MEMBERS RESPONDING).	36
TABLE 21 - JOB SATISFACTION INDICATORS FOR AFSC 545X1 BY CAREER JOBS (PERCENT MEMBERS RESPONDING).	37
FIGURE 1 - AFSC 545X1 CAREER LADDER JOBS	6
APPENDIX A - SELECTED REPRESENTATIVE TASKS PERFORMED BY MEMBERS OF CAREER LADDER JOBS.	38

PREFACE

This report presents the results of an occupational survey of the Liquid Fuel Systems Maintenance career ladder, Air Force Specialty Code (AFSC) 545X1. Authority for conducting occupational surveys is found in Air Force Regulation (AFR) 35-2. Computer products used in this report are available for use by operations and training officials.

Ms Cindy Luster, Inventory Developer, developed the survey instrument. Captain Jay Graser analyzed the survey data and wrote the final report. Ms Rebecca R. Hernandez provided computer programming support; Staff Sergeant Howard C. Allwood and Ms Raquel A. Soliz provided administrative support. This report has been reviewed and approved for release by Lieutenant Colonel Jim Antenen, Chief, Airman Analysis Section, Occupational Analysis Flight, United States Air Force Occupational Measurement Squadron.

Copies of this report are distributed to Air Staff sections, major commands (MAJCOM), and other interested training and management personnel. Additional copies may be requested from the USAF Occupational Measurement Squadron, Attention: Chief, Occupational Analysis Flight (OMY), Randolph AFB, Texas 78150-5000.

GARY R. BLUM, Lt Colonel, USAF
Commander
USAF Occupational Measurement
Squadron

JOSEPH S. TARTELL
Chief, Occupational Analysis Flight
USAF Occupational Measurement
Squadron

SUMMARY OF RESULTS

1. Survey Coverage: Survey results are based on responses from 226 AFSC 545X1 respondents. This represents 56 percent of the total assigned population and 66 percent of those receiving survey booklets.
2. Specialty Jobs: Survey data revealed a homogeneous job structure, with three jobs identified. The General Maintenance job is the core job of the career ladder, with a more limited maintenance job performed by a small number of lower grade personnel and the Shop Foreman job.
3. Career Ladder Progression: Both 3- and 5-skill level personnel perform mostly technical tasks, while 7-skill level personnel perform a mixture of technical and supervisory tasks.
4. AFR 39-1 Specialty Descriptions: The AFR 39-1 Specialty Descriptions for the Liquid Fuel Systems Maintenance career ladder provide generally accurate descriptions of the jobs and tasks performed at each skill level.
5. Training: Nearly all elements of the Specialty Training Standard (STS) matched to inventory tasks and most learning objectives of the Plan of Instruction (POI) matched to tasks are supported by survey data.
6. Job Satisfaction: Job satisfaction of AFSC 545X1 personnel in the survey sample is somewhat higher than that reported by personnel in comparable AFSCs surveyed in 1991. Satisfaction indicators for the present study are higher than those reported in the 1982 Occupational Survey Report (OSR). Generally, job satisfaction remains good within the career ladder.
7. Implications: While the AFSC 545X1 career ladder appears to have changed very little since 1982, the jobs do appear to have become less specialized in that many of the same tasks are being performed by greater numbers of personnel. AFR 39-1 Specialty Descriptions accurately describe functions and tasks performed by AFSC 545X1 personnel. Four STS elements and 11 POI learning objectives are not supported by survey data. Thirty-seven percent of first-enlistment airmen perform electrical maintenance, but receive no formal training in electronic principles. The entry-level POI may need to be revised to include basic electronics.

OCCUPATIONAL SURVEY REPORT
LIQUID FUEL SYSTEMS MAINTENANCE
(AFSC 545X1)

INTRODUCTION

This is a report of an occupational survey of the Liquid Fuel Systems Maintenance career ladder (AFSC 545X1). The last occupational survey for this career ladder was published in October 1982. HQ ATC, Combat Support Training Division (HQ ATC/TTOC), requested the survey to collect current data for updating career ladder documents and training programs within the specialty.

Background

AFR 39-1 Specialty Descriptions for the Liquid Fuel Systems Maintenance state AFSC 545X1 personnel maintain, inspect, repair, install, and modify liquid fuel storing, distributing, and dispensing systems. Three- and 5-skill level personnel operate mechanical and electrical controls to adjust system components; inspect systems for leaks, corrosion, faulty fittings, and inoperative components; inspect electrical components and isolate electrical malfunctions; inspect pumps and motors; and remove and replace faulty components. Seven-skill level members perform more advanced analysis and problem-solving activities, tests, and diagnosis of malfunctions.

AFSC 545X1 personnel enter the career ladder by attending the 7-week long category A C3ABR54531 course conducted at Chanute AFB. The curriculum includes inspecting and maintaining liquid fuel storage and dispensing systems; fundamentals of basic hydraulics and electricity; fabricating piping and fitting assemblies; inspecting and maintaining storage tanks, pumps, unloading facilities, and various hydrant components; and troubleshooting installed mechanical and hydrant systems used for storing and dispensing aviation gasoline and jet petroleum (JP) fuels.

SURVEY METHODOLOGY

Inventory Development

The data collection instrument for this occupational survey was USAF Job Inventory (JI) Air Force Personnel Test (AFPT) 90-545-923, dated May 1991. A preliminary task list was prepared by the Inventory Developer after carefully reviewing previous task lists, current career ladder publications and training

APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED

documents. This tentative task list was validated through personal interviews with 24 subject-matter experts (SMEs) at the technical school and 5 operational bases listed below.

<u>BASE</u>	<u>REASON FOR VISIT</u>
Chanute AFB IL	Technical Training School
Eglin AFB FL	Types II and IV Hydrant Systems
Barksdale AFB LA	JP-10 Systems, Types I, II, III, and IV Hydrant Systems
Travis AFB CA	Types I, II, III, and original Type III Hydrant Systems
Elmendorf AFB AK	Types I and II Hydrant Systems dating back to 1949-1952
Nellis AFB NV	Type IV Hydrant Systems and GRU-17s

The final JI contains 573 tasks grouped under 18 duty headings and standard background questions asking for grade, duty title, time in service, time in present job, and time in career field. Additional questions requested respondents to indicate the functional area they work in, their job title, type of unit they are assigned to, and types of equipment they used.

Survey Administration

From July through November 1991, Military Personnel Flights at operational bases worldwide administered the survey to 3-, 5-, and 7-skill level Liquid Fuel Systems Maintenance personnel selected from a computer-generated mailing list provided by the Armstrong Laboratory, Human System Directorate. Respondents were asked to complete the identification and biographical information section, then go through the booklet and mark each task they perform in their current job, and finally go back and rate each task they had checked on a 9-point scale reflecting relative time spent on each task, as compared to all other tasks checked. Time spent ratings ranged from 1 (indicating a very small amount of time spent) to 9 (indicating a very large amount of time spent).

The computer calculated the relative percent time spent on all tasks for each respondent by first totaling ratings on all tasks, dividing the rating for each task by this total, and multiplying by 100. The time spent ratings from all inventories were then combined and used with percent members performing values to describe various groups in the career ladder.

Survey Sample

The final sample includes responses from 226 AFSC 545X1 personnel. As shown in Tables 1 and 2, the MAJCOM and paygrade distribution of the sample is very close to that of the total AFSC 545X1 population at the time of the survey, before the MAJCOMs had been restructured to their present configuration.

Under the present structure, most AFSC 545X1 personnel are assigned to Air Combat Command (ACC), which is made up of what was Tactical Air Command (TAC), most of Strategic Air Command (SAC), and some of Military Airlift Command (MAC). These changes do not impact on the findings of the survey.

Task Factor Administration

Job descriptions alone do not provide sufficient data for making decisions about career ladder documents or training programs. Task factor information is needed for a complete analysis of the career ladder. To obtain the needed task factor data, experienced Noncommissioned Officers (NCOs) completed either a training emphasis (TE) or task difficulty (TD) booklet. These booklets were processed separately from the job inventories, and the TE and TD data were used in several analyses discussed later in this report.

Training Emphasis (TE). TE is defined as a rating of the amount of structured training first-enlistment personnel need to successfully perform the tasks. Structured training is defined as training provided by resident technical schools, field training detachments (FTD), mobile training teams (MTT), formal on-the-job training, or any other organized training method. Twenty-four experienced NCOs (E-6s and E-7s) rated tasks on the inventory on a 10-point scale ranging from 0 (no training required) to 9 (high amount of training required). Interrater agreement for the 24 raters was acceptable. For this AFSC, the average TE rating is 3.19, with a standard deviation of 1.79. Any task with a TE rating of 4.98 or greater is considered to have a high TE.

Task Difficulty (TD). TD is defined as an estimate of the length of time the average airman takes to learn how to perform a task. Twenty experienced NCOs rated the difficulty of tasks on a 9-point scale ranging from 1 (easy to learn) to 9 (very difficult to learn). Interrater agreement was acceptable. TD ratings are normally adjusted so tasks of average difficulty have a value of 5.0, with a standard deviation of 1.0. Thus, any task with a TD rating of 6.00 or above is considered difficult to learn.

TE ratings, when used with percent members performing values and TD ratings, can provide a great deal of insight into training requirements, help validate the need for structured training, and be used to review training document for the career ladder.

TABLE 1
MAJCOM REPRESENTATION IN SAMPLE

<u>COMMAND</u>	<u>PERCENT OF ASSIGNED</u>	<u>PERCENT OF SAMPLE</u>
SAC	22	25
PACAF	17	16
MAC	16	19
TAC	16	16
USAFE	10	8
ATC	8	5
AFLC	6	6
AFSC	3	2
SPACECOM	2	1
OTHER	0	1

Total Assigned = 402
Total Eligible = 341
Total in Sample = 226
Percent of Assigned in Sample = 56%
Percent of Eligible in Sample = 66%

TABLE 2
PAYGRADE DISTRIBUTION OF SAMPLE

<u>PAYGRADE</u>	<u>PERCENT OF ASSIGNED</u>	<u>PERCENT OF SAMPLE</u>
E-1 to E-3	28	12
E-4	24	19
E-5	25	24
E-6	13	26
E-7	8	11
E-8	1	7
E-9	*	1

* Denotes less than 1 percent

SPECIALTY JOBS (Career Ladder Structure)

A USAF Occupational Analysis begins with an examination of the career ladder structure in terms of jobs performed by members of the specialty. Comprehensive Occupational Data Analysis Program (CODAP) assists by creating an individual job description for each respondent based on the tasks performed and relative amount of time spent on the tasks. The CODAP hierarchical job clustering program then compares all the individual job descriptions, locates those descriptions with the most similar tasks and time spent ratings, and combines them to form a composite job description. In successive stages, new members are added to this initial group, or new groups are formed based on the similarity of tasks and time spent ratings.

The basic group used in the hierarchical clustering process is the Job. When two or more jobs have a substantial degree of similarity in tasks performed and time spent on tasks, they are grouped together and identified as a Cluster. The structure of the Liquid Fuels Systems Maintenance career ladder is then defined in terms of the work performed, jobs, and clusters of jobs.

Overview

Three jobs were identified within the Liquid Fuel Systems Maintenance career ladder: General Maintenance, performed by 81 percent of all respondents, Apprentice Maintenance performed by 10 respondents, and Shop Foreman, performed by 11 AFSC 545X1 personnel (Figure 1). Relative time respondents spent performing the duties is shown in Table 3, while selected background data for these airmen are listed in Table 4. Descriptions of the three jobs are presented below, and representative tasks performed are listed in Appendix A. The stage (STG) number shown beside each title is a reference number assigned by CODAP, while the letter "N" refers to the number of respondents performing the job.

- I. GENERAL LIQUID FUEL SYSTEMS MAINTENANCE JOB (STG017, N=184)
- II. APPRENTICE LIQUID FUEL SYSTEMS MAINTENANCE JOB (STG020, N=10)
- III. SHOP FOREMAN JOB (STG018, N=11)

I. GENERAL LIQUID FUEL SYSTEMS MAINTENANCE JOB (STG017, N=184). This is the core job of the career ladder performed by most AFSC 545X1 personnel. It is a rather broad job as respondents identified with the job perform an average of 224 tasks dealing with general maintenance on a wide variety of liquid fuel systems equipment and some supervisory responsibilities. As shown by figures in Table 3, members with the job spend most duty time performing general maintenance activities and cleaning and inspecting storage tanks, with smaller amounts of time on most other duties. Airmen with the job spend most of their time performing the following tasks:

AFSC 545X1 CAREER LADDER JOBS

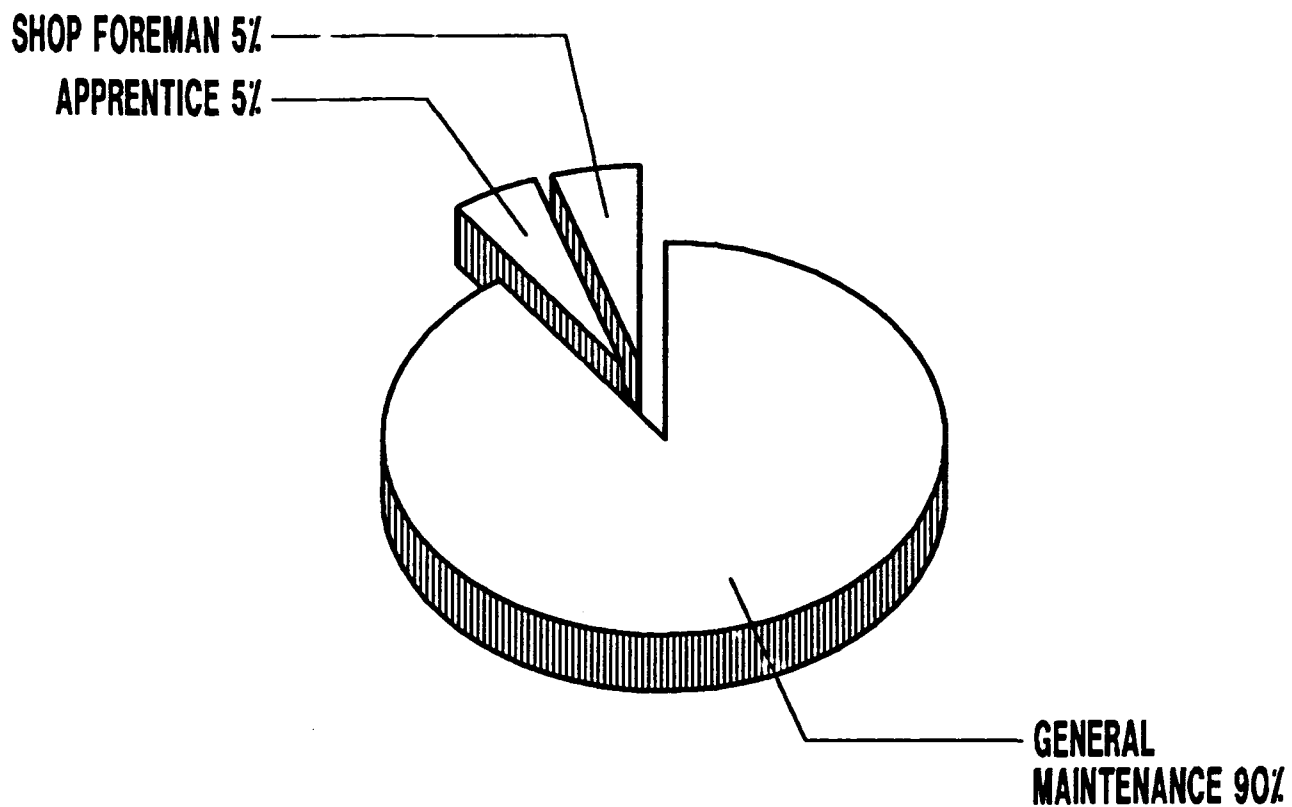


FIGURE 1

TABLE 3

DISTRIBUTION OF TIME SPENT ACROSS DUTIES BY MEMBERS
(RELATIVE PERCENT OF JOB TIME SPENT)

DUTIES	GENERAL LIQUID FUEL SYSTEMS MAINTENANCE (N=184)	APPRENTICE LIQUID FUEL SYSTEMS MAINTENANCE (N=10)	SHOP FOREMAN (N=11)
A ORGANIZING AND PLANNING	2	*	15
B DIRECTING AND IMPLEMENTING	3	2	21
C EVALUATING	2	*	14
D TRAINING	2	*	6
E PERFORMING ADMINISTRATIVE ACTIVITIES	4	2	20
F PERFORMING GENERAL MAINTENANCE ACTIVITIES	18	28	3
G CLEANING AND INSPECTING FUEL STORAGE TANKS	19	6	15
H PERFORMING ENVIRONMENTAL OR SAFETY ACTIVITIES	4	3	4
I MAINTAINING FUEL SYSTEMS COMPONENTS	8	10	*
J INSTALLING AND MAINTAINING AUTOMATIC VALVES AND COMPONENTS	9	9	*
K INSTALLING AND MAINTAINING MANUAL VALVES	6	11	*
L INSTALLING AND MAINTAINING FUEL STORAGE PUMPS	4	5	*
M INSTALLING AND MAINTAINING PIPELINES AND HYDRANT PITS	6	8	1
N INSTALLING AND MAINTAINING SERVICE STATION PUMP ASSEMBLIES	6	6	*
O INSTALLING AND MAINTAINING FUEL LOADING OR OFFLOADING EQUIPMENT	3	4	*
P PERFORMING FUEL SYSTEMS DEACTIVATION ACTIVITIES	2	4	*
Q INSTALLING AND MAINTAINING PORTABLE AND AIR- TRANSPORTABLE FUELING SYSTEMS	*	*	*
R PERFORMING ELECTRICAL ACTIVITIES	*	2	*

* Denotes less than 1 percent

TABLE 4
SELECTED BACKGROUND DATA ON PERSONNEL IN CAREER LADDER JOBS

	<u>GENERAL LIQUID FUEL SYSTEMS MAINTENANCE</u>	<u>APPRENTICE LIQUID FUEL SYSTEMS MAINTENANCE</u>	<u>SHOP FOREMAN</u>
NUMBER IN GROUP	184	10	11
PERCENT OF SAMPLE	81%	4%	5%

DAFSC DISTRIBUTION:			
54531	14%	10%	0
54551	64%	90%	9%
54571	22%	0	91%

PAYGRADE DISTRIBUTION:			
AIRMAN	28%	80%	0
E-4	27%	20%	9%
E-5	29%	0	0
E-6	11%	0	27%
E-7	3%	0	64%
E-8	1%	0	0
E-9	0	0	0

AVERAGE NUMBER OF TASKS PERFORMED	224	100	85
AVERAGE MONTHS TAFMS	90	33	174
PERCENT IN FIRST ENLISTMENT	36%	100%	0
PERCENT SUPERVISING	39%	0	91%

- Clean work areas
- Install or remove filter-separator elements
- Cut gasket materials
- Operationally inspect filter separators
- Cut copper or stainless steel tubing
- Install or remove nozzles in service station pump units
- Thread pipes
- Operationally inspect filter-separator fuel discharge control valves

As this is the basic job of the career ladder, it is performed by members of the three skill levels in paygrades E-1 through E-6.

II. APPRENTICE LIQUID FUEL SYSTEMS MAINTENANCE JOB (STG020, N=10). This is the entry-level job of the career ladder. Members with the job spend almost half their duty time performing general maintenance activities, installing and maintaining manual valves, and maintaining other components. The job is more limited as the 10 respondents reported performing an average of 100 tasks compared to 224 tasks performed by those with the General Maintenance job. The following tasks are those members with the job spend most time performing:

- Clean work areas
- Install or remove filter-separator elements
- Operationally check manual valves for ease of operation
- Cut pipes using handtools
- Cut stencils
- Install or remove pressure gauges
- Visually inspect grounding cables or rods
- Replace gaskets

Eight of the ten respondents performing the job are in paygrades E-1 through E-3, nine hold the 5-skill level, and the 10 average 33 months Total Active Federal Military Service (TAFMS).

III. SHOP FOREMAN JOB (STG018, N=11). This job is performed by senior personnel who spend over three-quarters of their duty time on management and administrative duties and 15 percent maintaining fuel storage tanks (see Table 3). This is the most limited job in the career ladder as the senior NCOs perform an average of only 85 tasks, fewer than members with the technical jobs. The following are tasks a typical Shop Foreman spends most time performing:

- Determine work priorities
- Counsel personnel on personal or military-related problems
- Interpret policies, directives, or procedures for subordinates
- Schedule leaves or passes
- Assign sponsors for newly assigned personnel
- Plan or schedule work assignments
- Prepare EPRs

AFSC 545X1 personnel performing this job average 174 months TAFMS, seven are in paygrade E-7, three are in paygrade E-6, and one is a senior airman. All but one respondent reported having supervisory responsibility.

Comparison to Previous Survey

Table 5 shows the comparison of jobs identified in the present study to those identified in 1982. Career ladder jobs have remained essentially unchanged since 1982, even though tasks performed by the two supervisory and Diverse Duty jobs identified in 1982 were included in the current General Maintenance job. Differences in jobs identified are the results of differences in the task lists used for the two studies and current task clustering procedures used to help identify work performed by respondents.

CAREER LADDER PROGRESSION

Analysis of Duty Air Force Specialty Code (DAFSC) groups, together with the analysis of the career ladder structure, is an important part of each occupational survey. The DAFSC analysis identifies differences in tasks performed by members of the various skill-level groups. These, in turn may be used to determine how well career ladder documents, such as AFR 39-1 Specialty Descriptions and the STS, reflect work actually being performed by members of the skill levels.

The distribution of skill-level personnel across the three specialty jobs is shown in Table 6, and relative time members of each skill level spend on duties is shown in Table 7. Since there is little difference between tasks performed by members with the 3- and 5-skill level, the two groups were combined and discussed as one group throughout this report.

Overall, 545X1 personnel progress typically through the career ladder. Three- and 5-skill level personnel perform the technical aspects of the specialty. Seven-skill level members perform a mixture of both technical and supervisory tasks. A more detailed discussion is presented below.

TABLE 5
COMPARISON OF CAREER LADDER STRUCTURE FOR
CURRENT AND PREVIOUS SURVEY

<u>JOBS IDENTIFIED IN CURRENT STUDY</u>	<u>JOBS IDENTIFIED IN PREVIOUS OSR</u>
GENERAL MAINTENANCE JOB	GENERAL MAINTENANCE PERSONNEL DIVERSE DUTY MAINTENANCE PERSONNEL WORKING SUPERVISORS SERVICE STATION PUMP ASSEMBLY MAINTENANCE WORKING SUPERVISORS
APPRENTICE MAINTENANCE JOB	JUNIOR MAINTENANCE PERSONNEL
SHOP FOREMAN JOB	SHOP FOREMEN

TABLE 6
DISTRIBUTION OF SKILL-LEVEL MEMBERS
ACROSS CAREER LADDER JOBS
(PERCENT)

<u>JOB</u>	<u>54531/51 (N=168)</u>	<u>54571 (N=58)</u>
GENERAL MAINTENANCE JOB	93	80
APPRENTICE MAINTENANCE JOB	6	0
SHOP FOREMAN JOB	1	20

TABLE 7

TIME SPENT ON DUTIES BY MEMBERS OF SKILL-LEVEL GROUPS
(RELATIVE PERCENT OF JOB TIME)

<u>DUTIES</u>	<u>54531/51 (N=168)</u>	<u>54571 (N=58)</u>
A ORGANIZING AND PLANNING	2	7
B DIRECTING AND IMPLEMENTING	2	8
C EVALUATING	1	8
D TRAINING	2	5
E PERFORMING ADMINISTRATIVE ACTIVITIES	3	10
F PERFORMING GENERAL MAINTENANCE ACTIVITIES	21	10
G CLEANING AND INSPECTING FUEL STORAGE TANKS	19	16
H PERFORMING ENVIRONMENTAL OR SAFETY ACTIVITIES	4	4
I MAINTAINING FUEL SYSTEMS COMPONENTS	8	5
J INSTALLING AND MAINTAINING AUTOMATIC VALVES AND COMPONENTS	9	6
K INSTALLING AND MAINTAINING MANUAL VALVES	6	4
L INSTALLING AND MAINTAINING FUEL STORAGE PUMPS	4	3
M INSTALLING AND MAINTAINING PIPELINES AND HYDRANT PITS	6	4
N INSTALLING AND MAINTAINING SERVICE STATION PUMP ASSEMBLIES	6	5
O INSTALLING AND MAINTAINING FUEL LOADING OR OFFLOADING EQUIPMENT	3	2
P PERFORMING FUEL SYSTEMS DEACTIVATION ACTIVITIES	2	1
Q INSTALLING AND MAINTAINING PORTABLE AND AIR-TRANSPORTABLE FUELING SYSTEMS	*	*
R PERFORMING ELECTRICAL ACTIVITIES	2	2

* Denotes less than 1 percent

Skill-Level Descriptions

DAFSC 54531/51. Survey data show 144 AFSC 54531/51 personnel have the General Maintenance job, 10 perform the Apprentice Maintenance job, and 1 is a Shop Foreman. As shown by figures in Table 7, 3- and 5-skill level members spend most of their duty time on general maintenance and storage tank activities, and smaller amounts of time on tasks related to the other duties. Representative tasks 3- and 5-skill level members perform, shown in Table 8, reflect the technical nature of the work done.

DAFSC 54571. Forty-one DAFSC 54571 personnel perform the General Maintenance job, and 10 are Shop Supervisors (Table 6). These more senior personnel are first-line supervisors who spend 28 percent of their duty time on supervisory and administrative functions and the rest of their time on technical aspects of the career ladder (see Table 7). Their supervisory role is clearly demonstrated by representative tasks 7-skill level members perform listed in Table 9 and tasks which best distinguish between DAFSC 54531/51 and 54571 respondents, listed in Table 10. Figures listed in the top half of the latter table show a higher percentage of 3- and 5-skill level members perform general maintenance tasks, while figures in the lower half show higher percentages of 7-skill level members perform the typical supervisory and administrative tasks listed.

AFR 39-1 SPECIALTY DESCRIPTION ANALYSIS

Survey data were compared to the AFR 39-1 Specialty Descriptions for Liquid Fuel Systems Maintenance Specialists and Technicians (all dated 30 April 1991). Survey data suggest the jobs and tasks included in the current Specialty Descriptions accurately reflect the work being done by airmen with the specialty.

TRAINING ANALYSIS

Occupational survey data are one of many sources of information that can be used to assist in the development of entry-level training programs. Factors used to review training documents include jobs performed by first-enlistment personnel, the distribution of first-enlistment personnel across the career ladder jobs, percent first-job (1-24 months TAFMS) and first-enlistment (1-48 months TAFMS) members performing specific tasks or using equipment items, as well as TE and TD ratings (previously explained in the SURVEY METHODOLOGY section).

A sample of tasks having the highest TE ratings, with accompanying first-job and first-enlistment members performing, and TD are listed in Table 11. About half deal with maintaining automatic valves, while the rest are general maintenance activities. Most of these tasks are performed by high percent

TABLE 8
REPRESENTATIVE TASKS PERFORMED BY 54531/51 PERSONNEL

TASKS	PERCENT MEMBERS PERFORMING (N=168)
F136 CLEAN WORK AREAS	99
F153 INSTALL OR REMOVE FILTER-SEPARATOR ELEMENTS	98
F138 CUT GASKET MATERIALS	97
F133 CLEAN HANDTOOLS	92
F137 CUT COPPER OR STAINLESS STEEL TUBING	91
F163 OPERATIONALLY INSPECT FILTER SEPARATORS	91
F184 THREAD PIPES	91
F140 CUT PIPES USING HANDTOOLS	89
F131 BEND COPPER TUBING	88
M471 REPLACE GASKETS	88
N483 INSTALL OR REMOVE NOZZLES IN SERVICE STATION PUMP UNITS	88
F143 FLAIR COPPER TUBING	88
I310 INSTALL OR REMOVE PRESSURE GAUGES	87
F146 GROUND PORTABLE EQUIPMENT	86
F164 OPERATIONALLY INSPECT FILTER-SEPARATOR FUEL DISCHARGE CONTROL VALVES	86
N482 INSTALL OR REMOVE HOSES IN SERVICE STATION PUMP UNITS	86
F159 INTERPRET VAPOR LEVELS IN ENCLOSED AREAS USING VAPOR INDICATORS	83
G224 INSTALL OR REMOVE BLIND FLANGES ON PIPELINES	83
N475 CALIBRATE AUTOMOTIVE FUEL DISPENSING UNIT METERS	83
G187 CLEAN PROTECTIVE EQUIPMENT	83
F142 CUT STENCILS	83
F174 REAM TUBING	83
G227 INSTALL OR REMOVE PIPELINE SKILLET FLANGES	82
K388 OPERATIONALLY CHECK MANUAL VALVES FOR LEAKS	82
G226 INSTALL OR REMOVE MANHOLE COVERS	82
G197 DON PROTECTIVE CLOTHING	81
K387 OPERATIONALLY CHECK MANUAL VALVES FOR EASE OF OPERATION	81
G186 CHECK MANHOLE COVERS FOR LEAKS	81
F185 VISUALLY INSPECT GROUNDING CABLES OR RODS	81
G199 EMPTY STORAGE TANKS USING PORTABLE PUMPS	80

TABLE 9
REPRESENTATIVE TASKS PERFORMED BY 54571 PERSONNEL

TASKS	PERCENT MEMBERS PERFORMING (N=58)
A4 DETERMINE WORK PRIORITIES	85
B22 COUNSEL PERSONNEL ON PERSONAL OR MILITARY-RELATED PROBLEMS	85
G204 INSPECT BREATHING HOSES	83
G233 INTERPRET AS-BUILT DRAWINGS	81
G208 INSPECT FRESH AIR MASKS	81
G197 DON PROTECTIVE CLOTHING	81
C52 EVALUATE SUBORDINATES' COMPLIANCE WITH PERFORMANCE STANDARDS	79
B32 INVENTORY EQUIPMENT, TOOLS, OR SUPPLIES	79
G196 DON BREATHING UNITS	79
A18 SCHEDULE LEAVES OR PASSES	78
G212 INSPECT PROTECTIVE CLOTHING	78
F159 INTERPRET VAPOR LEVELS IN ENCLOSED AREAS USING VAPOR INDICATORS	76
G215 INSPECT SAFETY ROPES	76
B40 WRITE CORRESPONDENCE	74
A13 PLAN OR SCHEDULE WORK ASSIGNMENTS	74
D85 MAINTAIN TRAINING RECORDS, CHARTS, OR GRAPHS	74
B34 PREPARE REQUISITIONS FOR SUPPLIES OR EQUIPMENT	74
B31 INTERPRET POLICIES, DIRECTIVES, OR PROCEDURES FOR SUBORDINATES	74
B27 IMPLEMENT SAFETY PROGRAMS	74
M438 INSPECT ABOVE GROUND PIPELINES FOR LEAKS AND CONDITIONS	74
G218 INSPECT TANK INTERIORS FOR CORROSION, HOLES, OR PITS	74
B37 SUPERVISE LIQUID FUEL SYSTEMS MAINTENANCE SPECIALISTS (AFS 54551)	72
C60 PREPARE EPRs	72
N475 CALIBRATE AUTOMOTIVE FUEL DISPENSING UNIT METERS	72
G194 COORDINATE TANK CLEANING PROCEDURES WITH BASE SAFETY OFFICES, FIRE DEPARTMENTS, OR SECURITY POLICE	72
G199 EMPTY STORAGE TANKS USING PORTABLE PUMPS	72
G187 CLEAN PROTECTIVE EQUIPMENT	72
G203 INSPECT BLOWERS OR EDUCTORS	72
G227 INSTALL OR REMOVE PIPELINE SKILLET FLANGES	72
G202 INSPECT AUTOMATIC TANK GAUGE FLOATS	72

TABLE 10

TASKS WHICH BEST DIFFERENTIATE BETWEEN
DAFSC 54531/51 AND DAFSC 54571 PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS	54531/51 (N=168)	54571 (N=58)	DIFF
P531 DRAIN FILTER SEPARATORS	73	36	37
F138 CUT GASKET MATERIALS	97	64	33
F131 BEND COPPER TUBING	88	55	33
F136 CLEAN WORK AREAS	99	67	31
F133 CLEAN HANDTOOLS	92	60	32
F142 CUT STENCILS	83	53	30
F137 CUT COPPER OR STAINLESS STEEL TUBING	91	62	29
F143 FLAIR COPPER TUBING	88	59	29
K373 ADJUST PACKING GLANDS ON MANUAL VALVES	80	52	28
F153 INSTALL OR REMOVE FILTER-SEPARATOR ELEMENTS	98	71	27

A2 ASSIGN SPONSORS FOR NEWLY ASSIGNED PERSONNEL	13	72	-59
A18 SCHEDULE LEAVES OR PASSES	20	78	-58
C52 EVALUATE SUBORDINATES' COMPLIANCE WITH PERFORMANCE STANDARDS	22	79	-57
B22 COUNSEL PERSONNEL ON PERSONAL OR MILITARY- RELATED PROBLEMS	30	85	-55
B40 WRITE CORRESPONDENCE	19	74	-55
A4 DETERMINE WORK PRIORITIES	31	85	-54
C47 EVALUATE JOB DESCRIPTIONS	8	59	-51
D85 MAINTAIN TRAINING RECORDS, CHARTS, OR GRAPHS	23	74	-51
B31 INTERPRET POLICIES, DIRECTIVES, OR PROCEDURES FOR SUBORDINATES	24	74	-50
C60 PREPARE EPRs	24	72	-48

TABLE 11

TASKS WITH HIGHEST AFSC 545X1 TRAINING EMPHASIS RATINGS

TASKS	TNG EMPH	PERCENT MEMBERS PERFORMING		TASK DIFF
		1ST JOB	1ST ENL	
F153 INSTALL OR REMOVE FILTER-SEPARATOR ELEMENTS	7.40	100	100	5.08
J325 ADJUST CDHS-3 PRESSURE DIFFERENTIAL CONTROLS	7.20	73	69	6.42
J331 ADJUST PRESSURE-RELIEF CONTROLS	7.15	71	73	5.93
G196 DON BREATHING UNITS	7.05	73	73	4.39
J324 ADJUST CDHS-2 PRESSURE DIFFERENTIAL CONTROLS	6.90	76	71	6.06
F159 INTERPRET VAPOR LEVELS IN ENCLOSED AREAS USING VAPOR INDICATORS	6.85	85	80	5.05
J326 ADJUST CV FLOW CONTROLS	6.85	80	75	5.06
F164 OPERATIONALLY INSPECT FILTER-SEPARATOR FUEL DISCHARGE CONTROL VALVES				
L400 ADJUST DEEP-WELL TURBINE MECHANICAL SEALS	6.80	85	85	5.53
J330 ADJUST PRESSURE-REDUCING CONTROLS	6.80	56	57	6.28
J327 ADJUST MODULATING-FLOAT CONTROLS	6.75	66	67	6.11
G197 DON PROTECTIVE CLOTHING	6.70	27	23	5.64
I282 CALIBRATE METERS, OTHER THAN SERVICE STATION METERS	6.55	73	75	3.92
F163 OPERATIONALLY INSPECT FILTER SEPARATORS	6.55	71	74	6.35
G208 INSPECT FRESH AIR MASKS	6.50	90	89	4.89
N475 CALIBRATE AUTOMOTIVE FUEL DISPENSING UNIT METERS	6.50	73	67	4.79
	6.45	76	76	5.48

TE MEAN = 3.19 S.D. = 1.79

TD MEAN = 5.00 S.D. = 1.00

TABLE 11 (CONTINUED)

TASKS WITH HIGHEST AFSC 545X1 TRAINING EMPHASIS RATINGS

TASKS	TNG EMPH	PERCENT MEMBERS PERFORMING		TASK DIFF
		1ST JOB	1ST ENL	
J364 OVERHAUL PRESSURE-RELIEF CONTROL COMPONENTS	6.40	51	46	6.00
J356 OVERHAUL CDHS-2 PRESSURE DIFFERENTIAL CONTROL COMPONENTS	6.35	46	40	6.19
R560 INTERPRET ELECTRICAL SCHEMATICS	6.35	17	14	7.35
J357 OVERHAUL CDHS-3 PRESSURE DIFFERENTIAL CONTROL COMPONENTS	6.30	51	44	6.34
J363 OVERHAUL PRESSURE-REDUCING CONTROL COMPONENTS	6.30	51	44	6.00
R571 TROUBLESHOOT ELECTRICAL CIRCUITS OR COMPONENTS	6.30	15	14	7.65
L402 ADJUST DEEP-WELL TURBINE PUMP IMPELLERS	6.25	44	42	6.07
R572 TROUBLESHOOT FUEL PUMP ELECTRICAL AUTOMATIC RESETS	6.20	20	11	7.53
R546 CONNECT OR DISCONNECT ELECTRICAL MOTOR WIRINGS	6.15	27	29	6.16
I278 ADJUST MECHANICAL LOW-LEVEL CONTROLS	6.10	54	60	5.84
J347 INSTALL OR REMOVE SOLENOIDS	6.05	56	52	5.83
J358 OVERHAUL CV FLOW CONTROL COMPONENTS	6.05	46	38	5.28
J360 OVERHAUL MODULATING-FLOAT CONTROL COMPONENTS	6.05	20	15	5.97
R559 INSTALL OR REMOVE PUMP CIRCUIT BREAKERS	6.05	12	13	6.00

TE MEAN = 3.19 S.D. = 1.79

TD MEAN = 5.00 S.D. = 1.00

members and have above average TD, the exceptions being tasks involving electrical activities which have low percent members performing, but high TE and TD. All tasks listed are matched to both the STS and POI.

A selection of tasks with the highest TD ratings is listed in Table 12. These deal with electrical activities, maintaining pumps, and supervisory functions. Most are performed by very few first-job, first-enlistment, 5- or 7-skill level members, have low TE, but are matched to the STS and POI.

First-Enlistment Personnel

Eighty-four Liquid Fuel Systems Maintenance personnel indicated they are in their first-enlistment. Ten perform the Apprentice Maintenance job, and 66 perform the General Maintenance job. Their involvement in these jobs is shown by representative tasks they perform, listed in Table 13. Most tasks performed by the highest percentages of first-enlistment personnel deal with general maintenance functions.

Types of maintenance first-enlistment personnel perform and the types of valves, meters, pumps, systems, and equipment they perform it on are listed in Table 14. It is interesting to note 37 percent of first-enlistment respondents indicated they perform electrical maintenance without the assistance of an electrician. About half the tasks in Duty R are performed by more than 30 percent of criterion group members. This is an area of particular interest to functional managers, since the POI does not contain specific electronic principles training. Since more than 30 percent of the survey responded positively to this question, some consideration should be given to adding electronics training to the 3ABR course.

STS

To assist in the review of the STS and the POI, personnel from the Chanute Training Center matched job inventory tasks to appropriate sections and subsections of the STS and POI. A complete copy of the matchings, displaying the STS elements and POI units of instruction, the matched tasks, the percent members performing the tasks, and the TE and TD ratings for each task, has been forwarded to the technical school for their use in further detailed reviews of training documents. A summary of this information follows.

AFSC 545X1 STS. Paragraphs 1 through 8 deal with general topics of career ladder organization, security, publications, CE maintenance management, physics, supervision and training, AFOSH, and tools and equipment and were not reviewed. Paragraphs 9 through 14 contain the technical aspects of the career ladder. The standards set forth in AFR 8-13/ATC Supplement 1 (Attachment 1, paragraph A1-3c(4)), and ATR 52-22 Attachment 1, were used to determine the relevance of each STS element that had tasks matched to it. Any element with matched tasks performed by by 20 percent or more first-job, first-enlistment, 5- or 7-skill level members is considered to supported.

TABLE 12

TASKS WITH HIGHEST TASK DIFFICULTY RATINGS FOR 545X' PERSONNEL

TASKS	TASK DIFF	PERCENT MEMBERS PERFORMING				TNG EMPH
		1ST JOB	1ST ENL	54551	54571	
L429 OVERHAUL DEEP-WELL TURBINE PUMPS	7.71	32	23	19	21	5.05
R571 TROUBLESHOOT ELECTRICAL CIRCUITS OR COMPONENTS	7.65	15	14	20	28	6.30
R572 TROUBLESHOOT FUEL PUMP ELECTRICAL AUTOMATIC RESETS	7.53	20	11	14	19	6.20
R560 INTERPRET ELECTRICAL SCHEMATICS	7.35	17	14	19	21	6.35
C66 WRITE STAFF STUDIES, SURVEYS, OR SPECIAL REPORTS	7.23	0	0	4	19	.50
L418 INSTALL OR REMOVE DEEP-WELL TURBINE PUMPS	7.17	41	36	37	33	5.20
L428 OVERHAUL CENTRIFUGAL PUMPS	7.12	37	37	46	48	5.90
D90 WRITE TRAINING REPORTS	7.08	0	0	0	7	.70
L430 OVERHAUL GEAR PUMPS	7.02	22	15	14	14	5.25
L432 OVERHAUL TRI-ROTOR PUMPS	6.97	2	1	0	7	3.80
D78 DEVELOP RESIDENT COURSE CURRICULUM MATERIALS	6.85	0	0	2	3	.30
B40 WRITE CORRESPONDENCE	6.85	5	2	22	74	1.60
L431 OVERHAUL ROTARY-VANE PUMPS	6.84	27	18	25	24	5.60
C65 WRITE CIVILIAN PERFORMANCE RATINGS OR SUPERVISORY APPRAISALS	6.83	0	0	1	43	1.00
J371 OVERHAUL 302AF MAIN VALVE BODY COMPONENTS	6.77	24	23	22	12	4.65
D89 WRITE TEST QUESTIONS	6.75	0	2	6	21	.60

TE MEAN = 3.19 S.D. = 1.79

TD MEAN = 5.00 S.D. = 1.00

TABLE 12 (CONTINUED)

TASKS WITH HIGHEST TASK DIFFICULTY RATINGS FOR 545X1 PERSONNEL

TASKS	TASK DIFF	PERCENT MEMBERS PERFORMING				TNG EMPH
		1ST JOB	1ST ENL	54551	54571	
R547 FABRICATE MAGNETIC SWITCHES	6.72	12	8	12	5	3.05
A7 DRAFT BUDGET OR FINANCIAL REQUIREMENTS	6.69	0	0	9	41	.70
A16 PREPARE JOB DESCRIPTIONS	6.68	0	0	9	48	.50
J353 INSTALL OR REMOVE 302AF MAIN VALVE BODIES	6.68	17	15	15	9	4.05
B22 COUNSEL PERSONNEL ON PERSONAL OR MILITARY-RELATED PROBLEMS	6.63	2	5	37	84	1.20
C61 REVIEW OR APPROVE HOT WORK, SUCH AS FLAME CUTTING OR WELDING PERMITS						
A12 PLAN LAYOUTS OF FACILITIES	6.62	0	0	7	40	.60
C42 CERTIFY OR EVALUATE CONTRACTORS	6.60	0	0	4	33	.05
L422 INSTALL OR REMOVE SELF-PRIMING CENTRIFUGAL PUMP VANES	6.60	5	2	8	38	.75
Q537 ASSEMBLE PORTABLE FUELING SYSTEMS	6.60	27	24	30	28	5.30
J365 OVERHAUL SOLENOIDS	6.59	0	4	6	7	1.20
R558 INSTALL OR REMOVE PIPELINE CATHODIC PROTECTION DEVICES	6.57	34	30	31	34	5.50
M434 CLEAN PIPELINE INTERIORS USING SCRAPER PIGS	6.55	2	1	1	7	4.00
D86 PLAN OJT	6.53	5	4	1	5	1.60
A8 ESTABLISH ORGANIZATIONAL POLICIES, OPERATING INSTRUCTIONS (OIs), OR STANDING OPERATING PROCEDURES (SOPs)	6.49	2	1	23	53	1.40
C60 PREPARE EPRs						
	6.48	0	2	10	50	.75
	6.46	0	1	31	72	1.55

TE MEAN = 3.19 S.D. = 1.79

TD MEAN = 5.00 S.D. = 1.00

TABLE 13

REPRESENTATIVE TASKS PERFORMED BY
FIRST-ENLISTMENT 545X1 PERSONNEL

TASKS	PERCENT MEMBERS PERFORMING (N=84)
F136 CLEAN WORK AREAS	100
F153 INSTALL OR REMOVE FILTER-SEPARATOR ELEMENTS	100
F138 CUT GASKET MATERIALS	98
F137 CUT COPPER OR STAINLESS STEEL TUBING	93
F133 CLEAN HANDTOOLS	91
F184 THREAD PIPES	91
F163 OPERATIONALLY INSPECT FILTER SEPARATORS	89
F143 FLAIR COPPER TUBING	89
F146 GROUND PORTABLE EQUIPMENT	88
F131 BEND COPPER TUBING	87
F140 CUT PIPES USING HANDTOOLS	87
M471 REPLACE GASKETS	86
N483 INSTALL OR REMOVE NOZZLES IN SERVICE STATION PUMP UNITS	86
I310 INSTALL OR REMOVE PRESSURE GAUGES	86
F164 OPERATIONALLY INSPECT FILTER-SEPARATOR FUEL DISCHARGE CONTROL VALVES	85
F174 REAM TUBING	83
N482 INSTALL OR REMOVE HOSES IN SERVICE STATION PUMP UNITS	82
G226 INSTALL OR REMOVE MANHOLE COVERS	81
F142 CUT STENCILS	81
G224 INSTALL OR REMOVE BLIND FLANGES ON PIPELINES	80
F159 INTERPRET VAPOR LEVELS IN ENCLOSED AREAS USING VAPOR INDICATORS	80
P531 DRAIN FILTER SEPARATORS	79
G227 INSTALL OR REMOVE PIPELINE SKILLET FLANGES	79
K388 OPERATIONALLY CHECK MANUAL VALVES FOR LEAKS	77
F185 VISUALLY INSPECT GROUNDING CABLES OR RODS	77
N475 CALIBRATE AUTOMOTIVE FUEL DISPENSING UNIT METERS	76
G187 CLEAN PROTECTIVE EQUIPMENT	76
F152 INSTALL OR REMOVE COMPRESSION FITTINGS, SUCH AS FERRELS	76
G186 CHECK MANHOLE COVERS FOR LEAKS	76
K379 INSTALL OR REMOVE MANUAL VALVES	76

TABLE 14

MAINTENANCE PERFORMED AND EQUIPMENT MAINTAINED
AND OPERATED BY FIRST-ENLISTMENT 545X1 PERSONNEL
(PERCENT MEMBERS RESPONDING)

<u>MAINTENANCE PERFORMED</u>	<u>1ST ENL (N=84)</u>
ELECTRICAL MAINTENANCE WITHOUT ASSISTANCE OF AN ELECTRICIAN	37
INERT TANK ENTRY	20
EXPEDIENT PIPELINE REPAIR	55
 <u>AUTOMATIC FUEL VALVES MAINTAINED</u>	 <u>1ST ENL</u>
A.O. SMITH	25
BAILEY	4
BOWSER	6
CARTER	5
EMCO-WHEATON	5
FISHER CONTROL	1
HARWOOD	7
LIQUID CONTROL	13
PARKER	2
RECCO	0
VACCO	1
WARREN ENGINEERING	0
WATTS MUESCO	11
 <u>FUEL METERS MAINTAINED</u>	 <u>1ST ENL</u>
A.O. SMITH	81
BENNET	6
BOWSER	13
BRODIE	50
GRANCO	19
LIQUID CONTROL	38
NEPTUNE	19
CAL-METER	0
PITTSBURG ROTOR CYCLE	5
ROCK ROTOR CYCLE	2
ROCKWELL	10
TOKHEIM	61

TABLE 14 (CONTINUED)

MAINTENANCE PERFORMED AND EQUIPMENT MAINTAINED
AND OPERATED BY FIRST-ENLISTMENT 545X1 PERSONNEL
(PERCENT MEMBERS RESPONDING)

<u>FUEL PUMPS MAINTAINED</u>	<u>1ST ENL</u>
DEEP-WELL TURBINE	90
DIAPHRAGM	68
GEAR	50
CENTRIFUGAL	83
PISTON	13
ROTARY VANE	60
SELF-PRIMING CENTRIFUGAL	64
TRI-ROTOR	2
 <u>HYDRANT SYSTEM BASE EMPLOYS</u>	 <u>1ST ENL</u>
JP-10 AIR-LAUNCH CRUISE MISSILE (ALCM) SYSTEMS	10
MECHANICAL SYSTEMS	29
MODIFIED PANERO SYSTEMS	33
MODIFIED PRITCHARD SYSTEMS	50
ORIGINAL PANERO SYSTEMS	17
ORIGINAL PRITCHARD SYSTEMS	23
TYPE III (CONSTANT PRESSURE) SYSTEMS	33
TYPE IV (HOT REFUELING) SYSTEMS	14
TYPE V (IN-SHELTER REFUELING) SYSTEMS	4
 <u>FUEL SYSTEM MAINTAINED</u>	 <u>1ST ENL</u>
JP-10 AIR-LAUNCH CRUISE MISSILE (ALCM) SYSTEMS	10
MECHANICAL SYSTEMS	37
MODIFIED PANERO SYSTEMS	32
MODIFIED PRITCHARD SYSTEMS	54
ORIGINAL PANERO SYSTEMS	17
ORIGINAL PRITCHARD SYSTEMS	24
TYPE III (CONSTANT PRESSURE) SYSTEMS	32
TYPE IV (HOT REFUELING) SYSTEMS	14
TYPE V (IN-SHELTER REFUELING) SYSTEMS	4

TABLE 14 (CONTINUED)

MAINTENANCE PERFORMED AND EQUIPMENT MAINTAINED
AND OPERATED BY FIRST-ENLISTMENT 545X1 PERSONNEL
(PERCENT MEMBERS RESPONDING)

<u>EQUIPMENT OPERATED OR MAINTAINED</u>	<u>1ST ENL</u>
ACETYLENE CUTTING TORCHES	12
AIR-POWERED AIR BLOWERS	62
AIR PUMPS, ELECTRICAL	18
AIR PUMPS, MANUAL	33
ARBOR PRESSES	11
CLAMP-ON AMP METERS	32
COMPRESSED AIR RESPIRATORS	86
COPPUS BLOWERS	74
DEAD-WEIGHT TESTERS	45
ELECTRIC 4-MAN BLOWERS	1
ELECTRIC DRILLS	86
EXPLOSIMETERS	70
FLANGE JACKS	80
FLOOR CRANES	26
FRESH AIR BLOWER ASSEMBLIES	35
GASKET CUTTING KITS	99
GAUGING TAPES	80
HAND-OPERATED CENTRIFUGAL 2-MAN BLOWERS	1
HAND-OPERATED 4-MAN BLOWERS	0
HAND-OPERATED POSITIVE DISPLACEMENT 2-MAN BLOWERS	2
HAND PIPE THREADERS AND CUTTERS	95
HOISTS, COME-A-LONG	64
HYDRAULIC PRESSURE GAUGE TESTS	68
HYDROSTATIC HOSE TESTERS	56
IMPACT WRENCHES	88
LUBRICATING GREASE GUNS	94
MANOMETERS	6
MA1 AIR MOVERS	10
MASTER METERS	82
MEGGER METERS	6
MULTIMETERS	63
MULTIPLIERS	4
NITRO CARTS	5
OIL-PROOF AIR HOSES	30
PNEUMATIC DRILLS	58
PORTABLE AIR COMPRESSORS	82
PORTABLE ELECTRIC PUMPS	20
PORTABLE GASOLINE PUMPS	49
PORTABLE GENERATORS	35
PORTABLE PNEUMATIC PUMPS	48

TABLE 14 (CONTINUED)

MAINTENANCE PERFORMED AND EQUIPMENT MAINTAINED
AND OPERATED BY FIRST-ENLISTMENT 545X1 PERSONNEL
(PERCENT MEMBERS RESPONDING)

<u>EQUIPMENT OPERATED OR MAINTAINED</u>	<u>1ST ENL</u>
PORTA POWER JACKS	15
POWER PIPE THREADERS AND CUTTERS	62
PROVER CANS (5-GALLON)	94
PROVER TANKS (600-GALLON)	8
REFUELING TRUCKS, M-SERIES OR C-300	17
SAND BLASTERS	4
SOLDERING IRONS	43
SOUND POWERED COMMUNICATION SETS	7
STAINLESS STEEL TUBING MACHINES	6
SWEENEY METERS	0
TORQUE WRENCHES	62
VACUUM TANKERS	10
VIBRA GROUNDERS	1
WELDING EQUIPMENT	11

One hundred and fourteen technical elements had tasks matched to them, with 110 supported by survey data. The four unsupported items deal with knowledge on fuel systems, maintaining protection devices, cathodic maintenance, and portable fuel systems. These unsupported elements, with accompanying survey data, are listed in Table 15.

There were a number of technical tasks performed by rather high percentages of criterion group/members not matched to the STS. Only three, however, have high TE, and most have below average TD. A sample of these tasks with accompanying survey data is listed in Table 16. The three tasks at the top are the three with the highest TE.

POI

Chanute AFB training personnel also matched inventory tasks to the 3ABR54531 POI, Apprentice Liquid Fuel Systems specialist, dated 7 October 1991. Criteria set forth in ATCR 52-22, Attachment 1, dated 17 February 1989 were used to evaluate learning objectives having tasks matched. Any objectives having tasks matched which are performed by 30 percent or more of first-job or first-enlistment personnel are considered to be supported.

There are 72 learning objectives that have inventory tasks matched to them. All but nine objectives are supported by survey data. Seven of the nine are taught to the knowledge level, and two, IV2e and IV3e, are performance oriented. The two performance objectives deal with repairing hydrant outlets and account for 4 hours of instruction. These two objectives, with accompanying survey data, are listed in Table 17. School personnel need to review all nine unsupported objectives to determine if they should remain in the entry-level course or be included in OJT.

There are a number of tasks that were not matched to any learning objectives, but had over 30 percent members performing. The first nine have high TE and deal with general maintenance activities and electronic repairs (see Table 18). Training personnel need to review these tasks to see if they suggest areas that need to be included in the entry-level course.

JOB SATISFACTION

Respondents were asked to indicate how interested they are in their jobs, if they feel their talents and training are being used, and if they intend to reenlist. Satisfaction indicators for TAFMS groups in the present study were compared to personnel in six similar direct support AFSCs surveyed in 1991 (see Table 19). Generally, AFSC 545X1 personnel report somewhat higher satisfaction than members of the related AFSCs.

TABLE 15

AFSC 545X1 STS ELEMENTS NOT SUPPORTED BY OSR DATA
(LESS THAN 20 PERCENT MEMBERS PERFORMING)

STS ELEMENT/REPRESENTATIVE TASKS	TNG EMPH	PERCENT MEMBERS PERFORMING							TASK DIFF
		1ST JOB	1ST ENL	5- LVL	7- LVL				
9. FUEL SYSTEMS 9A. TYPES									
F134 CLEAN PUMP HOUSE FLOOR DRAINS	1.25	12	12	15	14				3.10

10. MAINTENANCE OF INSTALLED FUEL SYSTEMS 10J(4). PROTECTION DEVICES									
R559 INSTALL OR REMOVE PUMP CIRCUIT BREAKERS	6.05	12	13	16	14				6.00

10J(11). CATHODIC PROTECTION 10J(11)(B.) MAINTENANCE									
R558 INSTALL OR REMOVE PIPELINE CATHODIC PROTECTION DEVICES	4.00	2	1	1	7				6.55

TE MEAN = 3.19 S. D. = 1.79

TD MEAN = 5.00 S. D. = 1.00

TABLE 15 (CONTINUED)

AFSC 545X1 STS ELEMENTS NOT SUPPORTED BY OSR DATA
(LESS THAN 20 PERCENT MEMBERS PERFORMING)

STS ELEMENT/REPRESENTATIVE TASKS		PERCENT MEMBERS PERFORMING					TASK DIFF
		1ST JOB	1ST ENL	5- LVL	7- LVL		
13. AFSC SPECIFIC CONTINGENCY RESPONSIBILITIES							
13C. PORTABLE FUEL SYSTEMS							
A -							
Q536	ADJUST PORTABLE AND AIR-TRANSPORTABLE FUELING SYSTEM COMPONENTS	0	1	1	2		6.07
Q537	ASSEMBLE PORTABLE FUELING SYSTEMS	0	4	6	7		6.59
Q539	INSTALL OR REMOVE BLADDER TANKS ON PORTABLE OR AIR-TRANSPORTABLE FUELING SYSTEMS	2	2	4	0		6.11
Q541	OPERATIONALLY INSPECT PORTABLE OR AIR-TRANSPORTABLE SYSTEMS FOR LEAKS	2	1	4	3		5.59
Q538	FUEL AIRCRAFT USING PORTABLE FUELING SYSTEMS	0	0	1	0		5.76
Q540	OFFLOAD AIRCRAFT USING PORTABLE FUELING SYSTEMS	0	0	1	0		6.06
Q542	PATCH BLADDER TANKS ON PORTABLE OR AIR-TRANSPORTABLE FUELING SYSTEMS	0	0	1	0		5.56

TE MEAN = 3.19 S. D. = 1.79
TD MEAN = 5.00 S. D. = 1.00

TABLE 16

EXAMPLES OF TASKS PERFORMED BY 20 PERCENT OR MORE AFSC 545X1
GROUP MEMBERS AND NOT REFERENCED TO THE STS
(PERCENT MEMBERS PERFORMING)

TASKS NOT REFERENCED	TNG EMPH	PERCENT MEMBERS PERFORMING					TASK DIFF
		1ST JOB	1ST ENL	5- LVL	7- LVL		
H268 ISOLATE FUEL SPILLS	5.50	59	65	73	48	6.14	
F143 FLAIR COPPER TUBING	5.10	95	89	86	59	3.96	
G212 INSPECT PROTECTIVE CLOTHING	5.05	76	71	81	78	3.65	
H275 RESPOND TO FUEL SPILLS	4.70	76	73	79	53	4.38	
M451 OPERATIONALLY INSPECT AIR ELIMINATORS	4.40	56	60	70	59	4.08	
F165 OPERATIONALLY INSPECT SURGE ARRESTERS	4.30	22	31	41	29	4.75	
F182 TEST HOSES USING PRESSURE FROM DEAD HEAD PUMPS	4.30	51	46	50	33	4.19	
O524 OVERHAUL DRY-BREAK COUPLINGS	4.30	39	35	46	41	5.88	
H261 CONTAIN AND ABSORB FUEL SPILLS WITH ABSORBENT PADS	4.20	56	70	72	57	5.29	
H262 CONTAIN AND ABSORB FUEL SPILLS WITH RESOURCES, OTHER THAN WITH ABSORBENT PADS	4.20	54	56	59	45	5.52	
O521 OPERATIONALLY INSPECT EMERGENCY STOP SWITCHES	4.10	59	56	66	66	3.60	
H274 RECOVER ABSORBENT MATERIALS FROM FUEL SPILLS	3.85	51	54	60	40	4.46	
F178 TAG ELECTRICAL COMPONENTS OR CIRCUITS	3.85	41	40	40	45	3.63	
F147 GROUND TANK CARS, TRUCKS, OR OTHER VEHICLES	3.65	51	46	44	31	3.49	
O511 INSTALL OR REMOVE COUPLINGS	3.55	37	33	36	41	4.50	
F171 PERFORM MINOR CORROSION CONTROL ON EXTERIOR METAL SURFACES	3.40	56	61	72	52	3.91	
G252 SCRAPE FLANGES TO REMOVE RUST OR SCALES	3.35	66	67	72	52	3.16	
G210 INSPECT HIGH-PRESSURE AIR HOSES	3.20	63	48	53	45	4.24	
F176 SEND EQUIPMENT TO PMELS	2.70	61	58	63	50	3.39	
F149 INSPECT CONTROL ROOM PRESSURIZATION SYSTEMS	2.60	29	30	28	24	4.06	
F168 OPERATIONALLY INSPECT WATER OIL SEPARATORS	2.40	32	32	39	29	4.13	

TE MEAN = 3.19 S. D. = 1.79

TD MEAN = 5.00 S. D. = 1.00

TABLE 17.

UNSUPPORTED POI OBJECTIVES TAUGHT TO PERFORMANCE LEVEL

	TNG EMPH	ATI	PERCENT MEMBERS PERFORMING			TASK DIFF
			1ST JOB	1ST ENL		
IV 2E. GIVEN A CHECKLIST, HANDTOOLS, AND A MANUFACTURER'S MANUAL, WORK AS A TEAM MEMBER TO OVERHAUL THE MODIFIED PANERO SYSTEM HYDRANT OUTLET ON AN ASSIGNED TRAINER.						
M457 OVERHAUL CLA-VAL COUPLERS	5.50	11	17	12		5.67
M456 OVERHAUL BUCKEYE COUPLERS	2.40	2	12	13		5.69
M458 OVERHAUL HARWOOD COUPLERS	1.90	2	5	2		5.61
M460 OVERHAUL PHILADELPHIA COUPLERS	1.65	2	5	2		5.64
O107 IV 3E. GIVEN A CHECKLIST, HANDTOOLS, AND A MANUFACTURER'S MANUAL, WORK AS A TEAM MEMBER TO REPAIR THE HYDRANT OUTLET ON AN ASSIGNED TRAINER.						
M457 OVERHAUL CLA-VAL COUPLERS	5.50	11	17	12		5.67
M456 OVERHAUL BUCKEYE COUPLERS	2.40	2	12	13		5.69
M458 OVERHAUL HARWOOD COUPLERS	1.90	2	5	2		5.61
M460 OVERHAUL PHILADELPHIA COUPLERS	1.65	2	5	2		5.64

TE MEAN = 3.19 S. D. = 1.79
 TD MEAN = 5.00 S. D. = 1.00

TABLE 18

EXAMPLES OF TECHNICAL TASKS WITH GREATER THAN 30 PERCENT
MEMBERS PERFORMING AND NOT REFERENCED TO POI

TASKS NOT REFERENCED	TNG EMPH	ATI	PERCENT MEMBERS PERFORMING		TASK DIFF
			1ST JOB	1ST ENL	
J344 INSTALL OR REMOVE PRESSURE-REDUCING CONTROLS	5.65	12	51	49	5.11
J335 INSTALL OR REMOVE CDHS-2 PRESSURE DIFFERENTIAL CONTROLS	5.60	18	56	51	5.12
R554 INSTALL OR REMOVE ELECTRICAL MOTORS	5.60	12	32	39	6.19
K374 ADJUST TWIN SEAL VALVES	5.55	12	32	37	4.55
H268 ISOLATE FUEL SPILLS	5.50	18	59	65	6.14
R562 OPERATIONALLY INSPECT PUMP CONTROL SWITCHES	5.25	12	29	31	4.51
F143 FLAIR COPPER TUBING	5.10	18	95	89	3.96
M441 INSTALL OR REMOVE HYDRANT OUTLETS	5.10	12	46	43	5.60
G212 INSPECT PROTECTIVE CLOTHING	5.05	18	76	71	3.65
H275 RESPOND TO FUEL SPILLS	4.70	17	76	73	4.38
M451 OPERATIONALLY INSPECT AIR ELIMINATORS	4.40	17	56	60	4.08
F165 OPERATIONALLY INSPECT SURGE ARRESTERS	4.30	15	22	31	4.75
F182 TEST HOSES USING PRESSURE FROM DEAD-HEAD PUMPS	4.30	15	51	46	4.19
O524 OVERHAUL DRY-BREAK COUPLINGS	4.30	15	39	35	5.88
H261 CONTAIN AND ABSORB FUEL SPILLS WITH ABSORBENT PADS	4.20	17	56	70	5.29
L413 INSPECT PUMP ROTATIONS	4.20	15	44	43	4.14
O521 OPERATIONALLY INSPECT EMERGENCY STOP SWITCHES	4.10	17	59	56	3.60
F178 TAG ELECTRICAL COMPONENTS OR CIRCUITS	3.85	15	41	40	3.63

TE MEAN = 3.19 S. D. = 1.79

TD MEAN = 5.00 S. D. = 1.00

TABLE 18 (CONTINUED)

EXAMPLES OF TECHNICAL TASKS WITH GREATER THAN 30 PERCENT MEMBERS PERFORMING AND NOT REFERENCED TO POI

TASKS NOT REFERENCED	TNG EMPH	ATI	PERCENT MEMBERS PERFORMING		TASK DIFF
			1ST JOB	1ST ENL	
H274 RECOVER ABSORBENT MATERIALS FROM FUEL SPILLS	3.85	17	51	54	4.46
F147 GROUND TANK CARS, TRUCKS, OR OTHER VEHICLES	3.65	15	51	46	3.49
I295 GAUGE TANKS MANUALLY	3.55	17	73	74	3.76
O511 INSTALL OR REMOVE COUPLINGS	3.55	15	37	33	4.50
G252 SCRAPE FLANGES TO REMOVE RUST OR SCALES	3.35	17	66	67	3.16
G186 CHECK MANHOLE COVERS FOR LEAKS	3.20	8	78	76	2.83
G210 INSPECT HIGH-PRESSURE AIR HOSES	3.20	15	63	48	4.24
F136 CLEAN WORK AREAS	3.05	6	100	100	2.61
M470 REPAIR WATER SUMP PUMPS	2.80	2	32	26	5.98
B32 INVENTORY EQUIPMENT, TOOLS, OR SUPPLIES	2.70	14	32	42	4.44
F176 SEND EQUIPMENT TO PMELS	2.70	16	61	58	3.39
M443 INSTALL OR REMOVE HYDRANT PIT LIDS, HINGES, OR HANDLES	2.65	14	29	32	5.02
F149 INSPECT CONTROL ROOM PRESSURIZATION SYSTEMS	2.60	14	29	30	4.06
F168 OPERATIONALLY INSPECT WATER OIL SEPARATORS	2.40	14	32	32	4.13
M455 OPERATIONALLY INSPECT WATER SUMP PUMPS	2.30	14	39	32	4.03
M450 INSTALL OR REMOVE WATER SUMP PUMPS	2.25	14	32	31	5.23
I284 CLEAN GAUGES	2.20	16	51	55	3.69

TE MEAN = 3.19 S. D. = 1.79

TD MEAN = 5.00 S. D. = 1.00

TABLE 19

COMPARISON OF JOB SATISFACTION INDICATORS FOR 545X1
TAFMS GROUPS IN CURRENT STUDY TO A COMPARATIVE SAMPLE
(PERCENT MEMBERS RESPONDING)

	<u>1-48 MONTHS TAFMS</u>		<u>49-96 MONTHS TAFMS</u>		<u>97+ MONTHS TAFMS</u>	
	<u>545X1</u> <u>(N=84)</u>	<u>COMP</u> <u>SAMPLE</u> <u>(N=2,080)</u>	<u>545X1</u> <u>(N=47)</u>	<u>COMP</u> <u>SAMPLE</u> <u>(N=1,191)</u>	<u>545X1</u> <u>(N=95)</u>	<u>COMP</u> <u>SAMPLE</u> <u>(N=934)</u>
<u>EXPRESSED JOB INTEREST:</u>						
INTERESTING	74	69	77	75	77	76
SO-SO	15	18	11	16	15	15
DULL	8	13	13	9	7	8
<u>PERCEIVED USE OF TALENTS:</u>						
FAIRLY WELL TO GOOD	81	78	85	80	86	82
LITTLE TO NONE AT ALL	19	22	15	20	14	18
<u>PERCEIVED USE OF TRAINING:</u>						
FAIRLY WELL TO GOOD	89	81	89	79	89	80
LITTLE TO NONE AT ALL	11	19	11	21	11	20
<u>REENLISTMENT INTENTIONS:</u>						
WILL REENLIST	51	56	74	80	80	76
WILL NOT REENLIST	46	43	26	19	6	6
WILL RETIRE	*	*	*	*	14	18

* Denotes less than 1 percent

NOTE: Comparative data are from AFSCs 551X0, 551X1, 552X0, 612X0, 612X1, and 753X0 surveyed in 1991

Table 20 compares satisfaction indicators for the current survey to those of the previous study. Indicators for all TAFMS groups are quite similar, except there are slightly higher reenlistment intentions reported in the current study.

Satisfaction indicators for members performing the career ladder jobs are presented in Table 21. Fuel System Maintenance personnel with the Apprentice Maintenance job have the lowest overall indicators in that only half find their job interesting, noticeably fewer feel their talents and training are used, and only eight plan to reenlist. This may be due to the rather limited job entry-level personnel perform.

IMPLICATIONS

Overall, jobs within the 545X1 career ladder have not changed since 1982, although the 545X1 career ladder appears to have become less specialized since the previous OSR. While many of the same tasks are being accomplished, they are accomplished by a greater number of personnel, making for a more homogeneous career ladder. AFR 39-1 provides an accurate picture of the responsibilities of the career ladder. The STS and POI adequately depict the tasks performed and the training required to send functional 3-skill levels to the field. However, with 37 percent of first-term airmen performing electrical maintenance without the assistance of an electrician, consideration should be given to providing electronic training in the entry-level course.

TABLE 20

COMPARISON OF JOB SATISFACTION INDICATORS FOR AFSC 545X1
TAFMS GROUPS IN CURRENT AND PREVIOUS STUDY
(PERCENT MEMBERS RESPONDING)

	<u>1-48 MONTHS TAFMS</u>		<u>49-96 MONTHS TAFMS</u>		<u>97+ MONTHS TAFMS</u>	
	1992 (N=84)	1982 (N=157)	1992 (N=47)	1982 (N=65)	1992 (N=95)	1982 (N=82)
<u>EXPRESSED JOB INTEREST:</u>						
INTERESTING	76	74	77	76	77	84
SO-SO	16	14	11	12	15	12
DULL	8	12	12	12	8	4
<u>PERCEIVED USE OF TALENTS:</u>						
FAIRLY WELL TO PERFECTLY LITTLE OR NOT AT ALL	81 19	76 24	85 15	80 20	86 44	89 11
<u>PERCEIVED USE OF TRAINING:</u>						
FAIRLY WELL TO PERFECTLY LITTLE OR NOT AT ALL	89 11	84 16	89 11	94 6	89 11	89 11
<u>REENLISTMENT INTENTIONS:</u>						
WILL REENLIST	53	42	74	60	80	77
WILL NOT REENLIST	46	57	25	39	6	8
WILL RETIRE	*	1	*	*	14	15

* Denotes less than 1 percent

TABLE 21

JOB SATISFACTION INDICATORS FOR AFSC 545X1
 BY CAREER LADDER JOBS
 (PERCENT MEMBERS RESPONDING)

	<u>GENERAL LIQUID FUEL SYSTEMS MAINTENANCE</u>	<u>APPRENTICE LIQUID FUEL SYSTEMS MAINTENANCE</u>	<u>SHOP FOREMAN</u>
<u>EXPRESSED JOB INTEREST:</u>			
INTERESTING	79	70	73
SO-SO	13	10	18
DULL	7	20	9
<u>PERCEIVED USE OF TALENTS:</u>			
FAIRLY WELL TO PERFECTLY	86	91	90
LITTLE OR NOT AT ALL	14	9	10
<u>PERCEIVED USE OF TRAINING:</u>			
FAIRLY WELL TO PERFECTLY	92	80	91
LITTLE OR NOT AT ALL	8	20	9
<u>REENLISTMENT INTENTIONS:</u>			
WILL REENLIST	72	30	73
WILL NOT REENLIST	24	70	0
WILL RETIRE	4	*	27

* Denotes less than 1 percent

APPENDIX A
SELECTED REPRESENTATIVE TASKS PERFORMED BY
MEMBERS OF CAREER LADDER JOBS

TABLE A1

GENERAL LIQUID FUEL MAINTENANCE SYSTEMS JOB
(STG017)GROUP SIZE: 184
PERCENT OF SAMPLE: 81%AVERAGE TAFMS: 90
AVERAGE TICF: 84

TASKS	PERCENT MEMBERS PERFORMING
F136 CLEAN WORK AREAS	98
F153 INSTALL OR REMOVE FILTER-SEPARATOR ELEMENTS	97
F138 CUT GASKET MATERIALS	96
F163 OPERATIONALLY INSPECT FILTER SEPARATORS	95
F137 CUT COPPER OR STAINLESS STEEL TUBING	94
N483 INSTALL OR REMOVE NOZZLES IN SERVICE STATION PUMP UNITS	94
F184 THREAD PIPES	93
F164 OPERATIONALLY INSPECT FILTER-SEPARATOR FUEL DISCHARGE CONTROL VALVES	92
F140 CUT PIPES USING HANDTOOLS	92
N475 CALIBRATE AUTOMOTIVE FUEL DISPENSING UNIT METERS	91
N482 INSTALL OR REMOVE HOSES IN SERVICE STATION PUMP UNITS	91
G187 CLEAN PROTECTIVE EQUIPMENT	91
F133 CLEAN HANDTOOLS	91
F159 INTERPRET VAPOR LEVELS IN ENCLOSED AREAS USING VAPOR INDICATORS	91
G188 CLEAN TANK CLEANING HOSES	91
K388 OPERATIONALLY CHECK MANUAL VALVES FOR LEAKS	90
G212 INSPECT PROTECTIVE CLOTHING	90
M471 REPLACE GASKETS	90
I310 INSTALL OR REMOVE PRESSURE GAUGES	90
G224 INSTALL OR REMOVE BLIND FLANGES ON PIPELINES	90
F143 FLAIR COPPER TUBING	90
G227 INSTALL OR REMOVE PIPELINE SKILLET FLANGES	90
G226 INSTALL OR REMOVE MANHOLE COVERS	90
G186 CHECK MANHOLE COVERS FOR LEAKS	90
G197 DON PROTECTIVE CLOTHING	89
M438 INSPECT ABOVE GROUND PIPELINES FOR LEAKS AND CONDITIONS	89
F131 BEND COPPER TUBING	89
G199 EMPTY STORAGE TANKS USING PORTABLE PUMPS	89
G196 DON BREATHING UNITS	89
F146 GROUND PORTABLE EQUIPMENT	88
G204 INSPECT BREATHING HOSES	88
F174 REAM TUBING	88
K387 OPERATIONALLY CHECK MANUAL VALVES FOR EASE OF OPERATION	87
G215 INSPECT SAFETY ROPES	87

TABLE 2
APPRENTICE LIQUID FUEL SYSTEMS MAINTENANCE JOB
(STG20)

GROUP SIZE: 10
PERCENT OF SAMPLE: 4%

AVERAGE TAFMS: 33
AVERAGE TICF: 29

TASKS	PERCENT MEMBERS PERFORMING
F136 CLEAN WORK AREAS	100
F153 INSTALL OR REMOVE FILTER-SEPARATOR ELEMENTS	100
K387 OPERATIONALLY CHECK MANUAL VALVES FOR EASE OF OPERATION	100
F140 CUT PIPES USING HANDTOOLS	100
F142 CUT STENCILS	100
I310 INSTALL OR REMOVE PRESSURE GAUGES	100
F185 VISUALLY INSPECT GROUNDING CABLES OR RODS	100
M471 REPLACE GASKETS	90
F163 OPERATIONALLY INSPECT FILTER SEPARATORS	90
P532 DRAIN PIPELINES	90
F133 CLEAN HANDTOOLS	90
F138 CUT GASKET MATERIALS	90
F167 OPERATIONALLY INSPECT WATER DRAIN VALVES	90
F146 GROUND PORTABLE EQUIPMENT	90
F184 THREAD PIPES	90
F173 REAM PIPES	90
P531 DRAIN FILTER SEPARATORS	80
F164 OPERATIONALLY INSPECT FILTER-SEPARATOR FUEL DISCHARGE CONTROL VALVES	80
M445 INSTALL OR REMOVE PIPES MANUALLY	80
F166 OPERATIONALLY INSPECT TRUCK-FILL STAND SWIVEL JOINTS	80
K379 INSTALL OR REMOVE MANUAL VALVES	80
I319 OPERATIONALLY INSPECT PRESSURE GAUGES	80
F131 BEND COPPER TUBING	80
F143 FLAIR COPPER TUBING	80
K373 ADJUST PACKING GLANDS ON MANUAL VALVES	80
I278 ADJUST MECHANICAL LOW-LEVEL CONTROLS	80
F174 REAM TUBING	80
I318 OPERATIONALLY INSPECT METERS	80
O519 LUBRICATE SWIVEL JOINTS	70
K388 OPERATIONALLY CHECK MANUAL VALVES FOR LEAKS	70
N482 INSTALL OR REMOVE HOSES IN SERVICE STATION PUMP UNITS	70
O520 OPERATIONALLY INSPECT DRY-BREAK COUPLINGS	70
I282 CALIBRATE METERS, OTHER THAN SERVICE STATION METERS	70
N483 INSTALL OR REMOVE NOZZLES IN SERVICE STATION PUMP UNITS	70
G224 INSTALL OR REMOVE BLIND FLANGES ON PIPELINES	70

TABLE 3

SHOP FOREMAN JOB
(STG18)GROUP SIZE: 11
PERCENT OF SAMPLE: 5%AVERAGE TAFMS: 174
AVERAGE TICF: 152

TASKS	PERCENT MEMBERS PERFORMING
A4 DETERMINE WORK PRIORITIES	100
B22 COUNSEL PERSONNEL ON PERSONAL OR MILITARY-RELATED PROBLEMS	100
B31 INTERPRET POLICIES, DIRECTIVES, OR PROCEDURES FOR SUBORDINATES	100
A18 SCHEDULE LEAVES OR PASSES	100
A2 ASSIGN SPONSORS FOR NEWLY ASSIGNED PERSONNEL	100
A13 PLAN OR SCHEDULE WORK ASSIGNMENTS	91
C60 PREPARE EPRs	91
E100 ANNOTATE AF FORMS 561 (BASE CIVIL ENGINEERING WEEKLY SCHEDULE)	91
A9 ESTABLISH PERFORMANCE STANDARDS FOR SUBORDINATES	91
A3 DETERMINE REQUIREMENTS FOR SPACE, PERSONNEL, EQUIPMENT, OR SUPPLIES	91
B40 WRITE CORRESPONDENCE	91
C52 EVALUATE SUBORDINATES' COMPLIANCE WITH PERFORMANCE STANDARDS	91
B34 PREPARE REQUISITIONS FOR SUPPLIES OR EQUIPMENT	82
B37 SUPERVISE LIQUID FUEL SYSTEMS MAINTENANCE SPECIALISTS (AFSC 54551)	82
B36 SUPERVISE CIVILIANS	82
C55 EVALUATE WORK SCHEDULES	82
E119 INITIATE AF FORMS 561 (BASE CIVIL ENGINEERING WEEKLY SCHEDULE)	82
B27 IMPLEMENT SAFETY PROGRAMS	82
A1 ASSIGN PERSONNEL TO DUTY POSITIONS	82
E110 COMPLETE AF FORMS 561 (BASE CIVIL ENGINEERING WEEKLY SCHEDULE)	82
C56 INDORSE ENLISTED PERFORMANCE REPORTS (EPRs)	82
D75 DETERMINE OJT REQUIREMENTS	82
E118 INITIATE AF FORMS 332 (BASE CIVIL ENGINEER WORK REQUEST)	82
C41 ANALYZE WORKLOAD REQUIREMENTS	73
B25 DIRECT UTILIZATION OF EQUIPMENT	73
A14 PLAN SAFETY PROGRAMS	73
B35 SUPERVISE APPRENTICE LIQUID FUEL SYSTEMS MAINTENANCE SPECIALISTS (AFSC 54531)	73